Introduction to Assistive Technologies for the Web

Gaye Graves

WebDev Manager

Benjamin Simpson

Information Architect

NASA Ames Research Center

7/19/00

Overview

- Review of several types of disabilities
- Software and Hardware assistive technology for web browsing
- Emerging Technologies
- Assistive Technology Vendors
- Resource Links

Review of Disabilities

- **Vision**
  - Blind, vision impairment, color perception
- **Hearing**
  - Deaf, hearing loss due to age
- **Motor skills**
  - Strength, control, paralysis, prosthesis
- **Cognition**
  - Learning, reading, memory disorders

Software & Hardware
Product Observations

- Generally add-ons, not built-in, but this is changing

- Purchased from specialized vendors

- Mostly mail order or web, not store front

- Fairly expensive

  – Expense due to limited market base?

  – Possible to rent instead of buy

- Primarily for Windows, not Mac

Software & Hardware

Vision Impairment

- **Screen Readers**
  - Synthesized speech reads file names, menus, alerts, text, alt tags, and links
  - Products: OutSpoken, Jaws, WindowEyes

- **Screen Magnifiers**
  - Enlarges a portion of the screen
  - Products: In Large, ZoomText, LP-Windows

10/30/00

Software & Hardware

Vision Impairment (cont'd)

- **Braile Displays**
  - Placed in front of keyboard
  - Reads screen text and converts to Braile
  - Products: Duxbury Braile Displays

- **Color Adjustment**
  - Invert black and white or change colors
  - Products: In Large

10/30/00

Software & Hardware

Vision Impairment (cont'd)

- **Text-based browsers**
  - Works with text-to-speech software
  - Tab-enabled capabilities
    - Internet Explorer better than Netscape

- **Audio**
  - Can be added as narration
  - prWebSpeak browser has text-to-speech
  - Products: Powerpoint, Eudora

Software & Hardware

Hearing Impairment

- **QuickTime (captioning on additional track)**

  – http://www.apple.com/quicktime/

- **SMIL (Synchronized Multimedia Language)**

  – http://www.w3.org/TR/SMIL-access/

- **SAMI (Synchronized Accessible Media Interchange)**

  – http://www.microsoft.com/enable/sami/default.htm

Software & Hardware

Motor Skills

- Mouse alternatives:
  - Pointers, Head mice, Switches, Touch Screens
  - Eye tracking
  - Foot pedals (for keyboard and mouse)
  - Arrow Key or Tab-enabled Browsers
  - Voice Recognition
- Sticky Keys

Software & Hardware

Cognitive Impairment

- Screen readers that highlight text as it's read

- Using images in addition to words

- Personal web page so content will be in a consistent location

- Product: MyWahoo!

Emerging Technologies

- Edapta
  - http://www.edapta.com/
- (Jini) Server-based software queries device for user display profile and provides appropirate version
- Networking technology recognizes devices as they connect including PDAs, phones, etc.

10/30/00

Emerging Technologies (Cont'd)

- **VoiceXML** provides intelligent API to speech and telephony apps for developers

  – http://www.voicexml.org/

- **Adobe Acrobat Access** 4.05 creates screenreader usable version of pdf

  – http://www.adobe.com/support/downloads/5efe.htm

10/30/00

Assistive Technology Vendors

- ## Apple Computer
  - http://www.apple.com/education/k12/disability/map.html
  - http://www.apple.com/education/k12/disability/macaccess.html

- ## Microsoft
  - http://www.microsoft.com/enable/products/aids.htm

- ## Keyboard Alternatives & Vision Solution
  - http://www.keyalt.com/

- ## Assistive Technology Industry Association
  - http://www.atia.org/members.html

Resource Links

- **GSFC Accessibility Section**
  - http://webmaster.gsfc.nasa.gov/access/

- **ARC Accessibility Section**
  - http://webmaster.arc.nasa.gov/access/

- **WebABLE database**
  - http://www.webable.com/search.html

- **ICDR**
  - http://www.icdri.org